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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,483	11/02/2001	Ronald A. Palfenier	45532/1:7	4037

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EXAMINER	
PRETLOW, DEMETRIUS R	
ART UNIT	**PAPER NUMBER**
2863	

DATE MAILED: 12/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/053,483	PALFENIER ET AL.	
	Examiner	Art Unit	
	Demetrius R. Pretlow	2863	AW

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☒ Claim(s) *16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 June 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claim 1,2,3 are objected to because of the following informalities:

In claim 1, line 11 the step of generating by at least the first sensor a first and second sensor signal is not disclosed.

In claim 2, the wavelength selective element includes a switchable wavelength selective element *that causes the first sensor to alternately receive the first and second wavelength ranges of the electromagnetic radiation* is not disclosed.

In claim 3, the first sensor generates the first and second sensor signals in response to alternately to receiving the first and second wavelength is not disclosed.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1,4-6,8,9,11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill et al. (US 5,993,059) in view of Engstrom et al. O'Neill et al. teach measuring a temperature of a target medium having a wavelength-dependent emissivity and emitting electromagnetic radiation related to the temperature, the temperature being measured with a radiometric temperature

measurement system having radiation transmission losses. O'Neill et al. teach positioning at least a first electromagnetic radiation sensor relative to the target medium such that the electromagnetic radiation emitted by the target medium is incident upon at least the first electromagnetic radiation sensor; Note O'Neill et al. column 6, lines 58-60. O'Neill et al. coupling a wavelength selective element to at least the first sensor, such that at least the first sensor receives at least one of a first and a second wavelength range of the electromagnetic radiation; Note O'Neill et al. column 6, lines 58-60 and Abstract lines 8-11. O'Neill et al. teach generating by at least the first sensor a first and a second sensor signal; Note O'Neill et al. column 7, lines 15-35. O'Neill et al. teach varying the temperature of the target medium; Note O'Neill et al. column 3, lines 54-56.

O'Neill et al. does not teach calculating a temperature of the target medium by processing the first and second sensor signals in a manner that is independent of the radiation transmission losses and the wavelength-dependent emissivity of the target medium.

Engstrom et al. teach calculating a temperature of the target medium by processing the first and second sensor signals in a manner that is independent of the radiation transmission losses and the wavelength-dependent emissivity of the target medium. Note Engstrom et al. column 4, lines 32-52.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of O'Neill et al. to include the teaching of Engstrom et al. because it would allow the temperature dependence of the measuring

apparatus to may be varied within wide limits by selection of a suitable luminescent material and by suitable doping of that material. Note Engstrom et al. column 3, lines 20-23.

In reference to claim 4, O'Neill et al. does not teach positioning at least a second electromagnetic radiation sensor relative to the target medium such that the electromagnetic radiation emitted by the target medium is incident upon at least the first and second electromagnetic radiation sensors.

Engstrom et al. teach positioning at least a second electromagnetic radiation sensor relative to the target medium such that the electromagnetic radiation emitted by the target medium is incident upon at least the first and second electromagnetic radiation sensors. Note Engstrom et al. column 3, lines 36-64.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of O'Neill et al. to include the teaching of Engstrom et al. because it would allow the temperature dependence of the measuring apparatus to may be varied within wide limits by selection of a suitable luminescent material and by suitable doping of that material. Note Engstrom et al. column 3, lines 20-23.

In reference to claim 5, O'Neill et al. do not teach coupling a wavelength selective element to at least a second sensor, such that the first sensor receives the first wavelength range of the electromagnetic radiation, and the second sensor receives the second wavelength range of the electromagnetic radiation.

Engstrom et al. teach coupling a wavelength selective element to at least a second sensor, such that the first sensor receives the first wavelength range of the electromagnetic radiation, and the second sensor receives the second wavelength range of the electromagnetic radiation. Note Engstrom et al. column 3, lines,1-3, 36-63, and column 4, lines 53-62.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of O'Neill et al. to include the teaching of Engstrom et al. because it would allow the temperature dependence of the measuring apparatus to may be varied within wide limits by selection of a suitable luminescent material and by suitable doping of that material. Note Engstrom et al. column 3, lines 20-23.

In reference to claim 6, O'Neill et al. does not teach the first sensor generates the first sensor signal, and the second sensor generates the second sensor signal.

Engstrom et al. teach the first sensor generates the first sensor signal, and the second sensor generates the second sensor signal. Note Engstrom et al. column 3, lines 36-63.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of O'Neill et al. to include the teaching of Engstrom et al. because it would allow the temperature dependence of the measuring apparatus to may be varied within wide limits by selection of a suitable luminescent material and by suitable doping of that material. Note Engstrom et al. column 3, lines 20-23.

In reference to claim 8, O'Neill et al. teach the target medium includes a semiconductor wafer. Note O'Neill et al. Abstract lines 1-11.

In reference to claim 9, O'Neill et al. teach the first sensor includes a probe element including a light guide formed from material including aluminum oxide crystal (sapphire). Note O'Neill et al. column 7, lines 1-2 and column 8, lines 9-12.

In reference to claim 11, O'Neill et al. teach the first sensor includes a probe element including a light guide material including sapphire. Note O'Neill et al. column 7, lines 1-2 and column 8, lines 9-12.

In reference to claim 12, O'Neill et al. does not teach a the first sensor includes a solid state detector material including gallium aluminum arsenide .

Engstrom et al. teach a the first sensor includes a solid state detector material including gallium aluminum arsenide . Note Engstrom et al. column 4, lines 21-25.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of O'Neill et al. to include the teaching of Engstrom et al. because it would allow the temperature dependence of the measuring apparatus to may be varied within wide limits by selection of a suitable luminescent material and by suitable doping of that material. Note Engstrom et al. column 3, lines 20-23.

In reference to claim 13, O'Neill does not teach solid-state detector material includes a spectral response characteristic having a radiation response that peaks at about 900 nm and diminishes by about three orders of magnitude at 1,000 nm.

Engstrom et al. teach a the first sensor includes a solid state detector material including gallium aluminum arsenide and a spectral response characteristic having a radiation response that peaks at about 900 nm and diminishes by about three orders of magnitude at 1,000 nm would be inherent to gallium aluminum arsenide. Note Engstrom et al. column 4, lines 21-25.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of O'Neill et al. to include the teaching of Engstrom et al. because it would allow the temperature dependence of the measuring apparatus to may be varied within wide limits by selection of a suitable luminescent material and by suitable doping of that material. Note Engstrom et al. column 3, lines 20-23.

In reference to claim 14, O'Neill et al. teach hot/cold mirror positioned between the target medium and at least the first sensor, the hot/cold mirror reflecting back to the target medium electromagnet radiation that is not substantially within at least one of the first and second wavelength ranges. Note O'Neill et al. abstract lines 1-22.

3. Claims 2,3,and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill et al. in view of Engstrom et al. as applied to claim 1 above, and further in view of Ish-Shalom et al. O'Neill et al. and Engstrom et al. teach the limitations above. O'Neill et al. and Engstrom et al. do not teach the wavelength selective element includes a switchable wavelength selective element that

causes the first sensor to alternately receive the first and second wavelength ranges of the electromagnetic radiation.

Ish-Shalom et al. teach radiation from wafer 10 is measured in three relatively narrow wavelength bands using only two detectors 32 and 34 and only one filter 30 which suggests that the wavelength selective element includes a switchable wavelength selective element that causes the first sensor to alternately receive the first and second wavelength ranges of the electromagnetic radiation. Note Ish-Shalom et al. column 13, lines 6-8.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of O'Neill et al. to include the teaching of Ish-Shalom et al. because the placement of the low wavelength cutoff of filter relatively close to the high wavelength tail of the output spectrum of radiation source, has as a consequence that the two subbands of the output spectrum of radiation source, in which the two reflectivity measurements are made, are relatively narrow. Note Ish-Shalom et al. column 13, lines 13-18.

In reference to claim 3, O'Neill et al. and Engstrom et al. do not teach the first sensor generates the first and second sensor signals in response to alternately to receiving the first and second wavelength.

Ish-Shalom et al. teach the first sensor generates the first and second sensor signals in response to alternately to receiving the first and second wavelength. (Note Ish-Shalom et al. column 13, lines 13-28 suggest more than one wavelength from a detector)

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of O'Neill et al. to include the teaching of Ish-Shalom et al. because it would increase the accuracy of the temperature measurement despite the background radiation. Note Ish-Shalom et al. column 13, lines 61-67.

In reference to claim 16, O'Neill et al. and Engstrom et al. do not teach processing of the first and second sensor signals includes averaging at least one of the first and second sensor signals.

Ish Shalom et al. teach teach processing of the first and second sensor signals includes averaging at least one of the first and second sensor signals. Note Ish-Shalom et al. column 11, lines 58-61.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of O'Neill et al. to include the teaching of Ish-Shalom et al. because it would increase the accuracy of the temperature measurement despite the background radiation. Note Ish-Shalom et al. column 13, lines 61-67.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill et al. in view of Engstrom et al. as applied to claims 1,4-6,8,9,11-14 above, and further in view of Emo et al. O'Neill et al. and Engstrom et al. do not teach the light guide formed from aluminum oxide crystals includes yttrium aluminum garnet.

Emo et al. teach the light guide formed from aluminum oxide crystals includes yttrium aluminum garnet. Note Emo et al. claim 12, lines 9-15.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention to include the teaching of Emo et al. because it would direct a linear polarized wave along a desired path while maintaining the polarization state of the polarized wave. Note Emo et al. claim 12, lines 9-15.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill et al. in view of Engstrom et al. as applied to claim 1 above, and further in view of Yam. O'Neill et al. and Engstrom et al. do not teach calculating the temperature of the target medium includes employing a data table.

Yam teach calculating the temperature of the target medium includes employing a data table. Note Yam column 4, lines 45-54.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of O'Neill et al. to include the teaching of Yam because it would map the measured output signal to the corresponding temperature of the ideal black body. Note Yam column 4, lines 50-53.

6. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Demetrius R. Pretlow whose telephone number is (703) 308-6722. The examiner can normally be reached on Monday - Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow, can be reached at (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Demetrius R. Pretlow Demetrius Pretlow 12/10/03

Patent Examiner

JBarlow

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